

Customer	:	CU-DAR001 Dart Helicopters Services	Drawing Name	:	350/355 AS X-TUBE FWD
Job Number	:	31901			
Estimate Number	:	12485			
P.O. Number	:	N/A	Part Number	:	D350748101
This Issue	:	4/17/2007	S.O. No.	:	N/A
Prsht Rev.	:	NC	Drawing Number	:	N/A
First Issue	:	N/A	Project Number	:	N/A
Previous Run	:	31017	Drawing Revision	:	N/A
		Type	:	Landing Gear	
Material	:	N/A	Due Date	:	5/30/2007
Written By	:	[Signature]	Qty:	1	Um: Each
Checked & Approved By	:	[Signature] 04.18			
Comment	:	Est Rev: A New Issue 06-07-05 JLM			
	:	Est Rev: B Update qty of MS21042L5 06-09-12 KJ			

Job Number:



1.0 DC DOCUMENT CONTROL



KS 07.05.10

**Comment:** Photocopy bluefile & type labels per PPPD350-748-101 CHG001

En 07/08/22

2.0	31901A	X-TUBE AS 350/355 HI FWD UNDER REWIEW
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Comment: Sub-Component X-TUBE AS 350/355 HI FWD  
D350-748-141 B 31901A

3.0	PACKAGING 1	PACKAGING RESOURCE #1
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Comment: PACKAGING RESOURCE #1  
Pick Packing Kit

4.0	D35001	350 SADDLE
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Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)  
350 SADDLE  
Batch: 028794

5.0	D35011	BUSHING
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Comment: Qty.: 16.0000 Each(s)/Unit Total: 16.0000 Each(s)  
BUSHING  
Batch: B28478

07/08/220

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 3:48:45 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 31901

Part Number: D350748101

Job Number:



Seq. #:	Machine Or Operation:	Description :
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6.0	AN46A	Bolt
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Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)

Bolt

Batch: M103962 (2x) - M105057 (14x)

7.0	AN441A	bolt
-----	--------	------



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

bolt

Batch: M102552

8.0	AN532A	Bolt
-----	--------	------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

Batch: M102850

9.0	AN960JD416	Washer
-----	------------	--------



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)

Washer

Batch: M104215

10.0	AN960JD516	Washer
------	------------	--------



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)

Washer

Batch: M104156

11.0	MS21042L4	Nut
------	-----------	-----



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)

Nut

Batch: M102552 (7x) - M103914 (17x)

12.0	MS21042L5	Nut
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Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Nut

Batch: M104118

CP 07/08/220

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA:   D   Date: 21/09/23  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 3:48:45 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE FWD

Job Number: 31901

Part Number: D350748101

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

En 07/08/22

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-101

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

B 7/8/22 SG

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

7/08/23 (1)

Job Completion



U 07-08-23

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: X-TUBE AS 350/355 HI FWD <del>UNDER REVIEW</del>
Job Number	: 31901A		
Estimate Number	: 12484		
P.O. Number	: <i>N/A</i>	Part Number	: D350748141
This Issue	: 4/17/2007	S.O. No.	: <i>N/A</i>
Prsht Rev.	: NC	Drawing Number	: D350-748-141 <del>CH</del>
First Issue	: <i>N/A</i>	Project Number	: N/A
Previous Run	: 31017A	Drawing Revision	: <i>CD</i>
	Type : LANDING GEAR	Material	: <i>N/A</i>
Written By	: <i>[Signature]</i>	Due Date	: 5/30/2007
Checked & Approved By	: <i>[Signature]</i>	Qty:	1 Um: Each
Comment	: Est Rev: A New Issue 06-07-05 JLM		
	: Est Rev: B Update cadplate process 06-09-12 KJ		

Job Number:

Page 1

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



Date: Tuesday, 4/17/2007 3:49:02 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 31901A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA648

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-141.

3-Scribe Part & Batch as per Dwg D350-748-141

SB 07/04/22

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

SB 07/04/22

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

MS 07/04/24

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Remove all Machining Marks

JD 7-4-25

9.0

OUTSIDE SERV.10

OUTSIDE SERVICES -LG



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 3227

Heat Treat to min 180 KSI As per Dwg D350-748-141

(MIL-T-6736 OR AMS 2759-1C)

Sand Blast tube after Heat Treat

Possible Supplier: Vac Aero

Ensure Certificate of Conformity is attached

C 2071051150

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

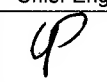
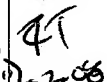


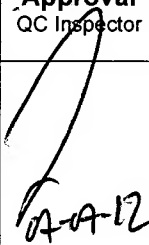
Receive & Inspect For Transit Damage

Ensure certificate of conformaty is attached

SB 07/06/040

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes ☒ No ☐ DQA: ☒ Date: 07/01/23  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07.07.12	14	Holes for shock absorbers shifted by 0.125". Should be 24.81", tube is: 24.937", 24.687"	 07.07.12 P.V. QSI/642	MOVE CENTERLINE TO D3502-1 SUPPRTS ARE CENTERED BETWEEN HOLES (R. SHIFT SUPPRTS BY 0.125") REF ATTACHED DS EMAIL.	 07-08-22	 07/02/22	 07.07.12 P.V. QSI/642	 07-07-12

NOTE: Date & initial all entries

Date: Tuesday, 4/17/2007 3:49:02 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 31901A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

Notes: none to identify tube by FAI sheet

12.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT

070710

13.0

QC15

DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

14.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill Tube as per Dwg D350-748-141 Using DT8876 Drill Jigs,  
Set-up drill table as per QSI 010

2-Deburr

3-Engrave Part # and Batch # as per Dwg D350-748-141

4-Remove all marks from tube within limits of D350-748-141

5- Apply a light coat of LPS3 on the interior of tube

Batch: 770716

7-7-16

070712

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

16.0

OUTSIDE SERV.10

OUTSIDE SERVICES -LG



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 4203

C267107118 0

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadmium Plate per AMS QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

**Dart Aerospace Ltd**

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Tuesday, 4/17/2007 3:49:02 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 31901A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

17.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

1/8/17

① SP

18.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

Ep 07/08/17

①

19.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2

2-Prime Outside of Tube as per Dart QSI 005 4.2

ml 07 08 19

①

20.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

RT 07-08-21

21.0

D35021

SUPPORT



SEE NCR ON BACK OF  
PREVIOUS PAGE BEFORE INSTALL



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

SUPPORT

Batch: 28476

RT 07-08-21

22.0

D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total : 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: 32020

RT 07-08-21

23.0

ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Insert

Batch: 19393

RT 07 08 21

W/O:		- WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

Date: Tuesday, 4/17/2007 3:49:03 PM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD, UNDER REVIEW

Job Number: 31901A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

24.0

AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Washer

Batch: 104885

RT 07-08-21

25.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch: 104902

RT 07-08-21

26.0

MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Screw

Batch: 18836

RT 07-08-21

27.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141, Torque to 60-80 IN-LBS

RT 07-08-21

28.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

End/08/22

29.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-241

Location: \_\_\_\_\_

PPP Rev: \_\_\_\_\_

31901

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: D Date: 01/08/23  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



Date: Tuesday, 4/17/2007 3:49:03 PM

User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI FWD UNDER REVIEW

Job Number: 31901A

Part Number: D350748141

Job Number:



Seq. #:

Machine Or Operation:

Description :

30.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

Handwritten: 207108123 (1)

Job Completion



Handwritten: 207108.23

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	31901A
<b>Description:</b> Crosstube Assembly (AS350/355 High Fwd)		<b>Part Number:</b>	D350-748-141
<b>Inspection Dwg:</b> D350-748-141 Rev: <i>LD OK 0704.10</i>		Page 1 of 1	

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

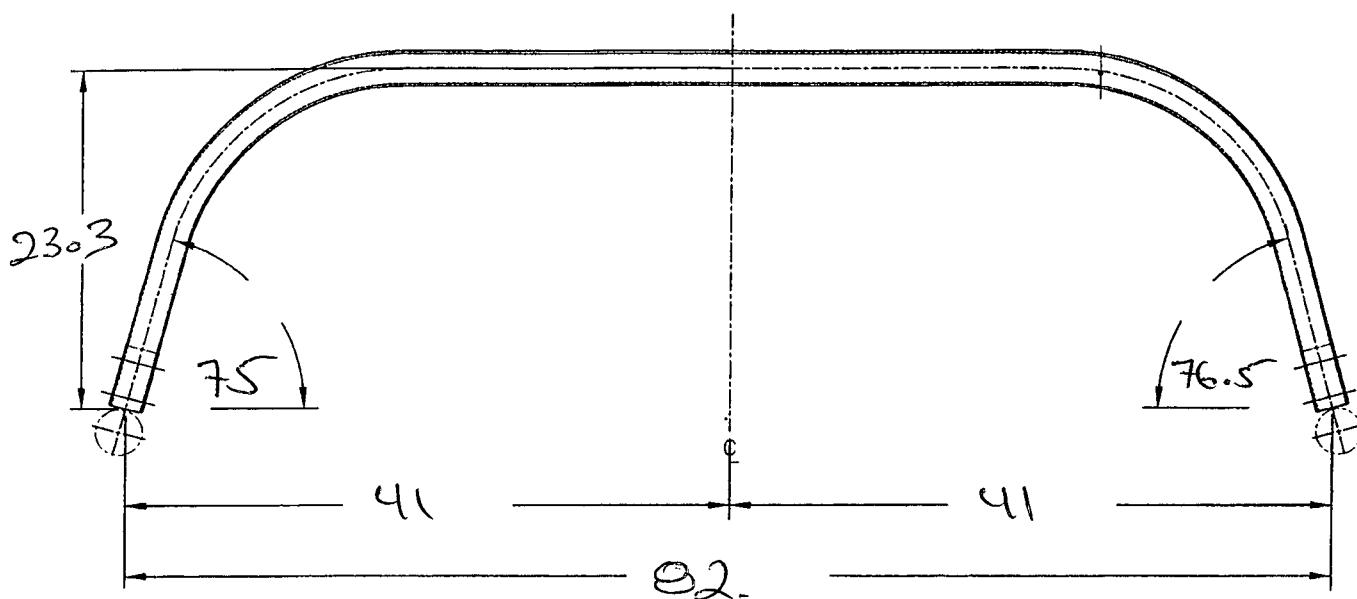
Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.242	✓			
	2.180	+0.005/-0.000	2.182	✓			
	2.180	+0.005/-0.000	2.182	✓			
	2.237	+0.005/-0.000	2.239	✓			
	2.272	+0.005/-0.000	2.274	✓			
	2.306	+0.005/-0.000	2.308	✓			
	2.339	+0.005/-0.000	2.341	✓			
	2.339	+0.005/-0.000	2.341	✓			
	0.062	+/-0.010	.062	✓			
	4.26	+/-0.030	4.270	✓			
	R0.063	+/-0.010	0.063	✓			
	R0.50	+/-0.030	.500	✓			
SIDE B	2.240	+0.005/-0.000	2.242	✓			
	2.180	+0.005/-0.000	2.182	✓			
	2.180	+0.005/-0.000	2.182	✓			
	2.237	+0.005/-0.000	2.239	✓			
	2.272	+0.005/-0.000	2.272	✓			
	2.306	+0.005/-0.000	2.306	✓			
	2.339	+0.005/-0.000	2.341	✓			
	2.339	+0.005/-0.000	2.341	✓			
	0.062	+/-0.010	.062				
	4.26	+/-0.030	4.26				
	R0.063	+/-0.010	.063				
	R0.50	+/-0.030	.500				
	110.27	+/-0.060	110.27				

<b>Measured by:</b> <i>JS</i>	<b>Audited by:</b> <i>MS</i>	<b>Prototype Approval:</b>	N/A
<b>Date:</b> <i>07/04/22</i>	<b>Date:</b> <i>07/04/24</i>	<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	06.11.09	New Issue (P/O D350-748-101)	KJ/JLM <i>JS</i>	<i>BE</i>

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b>	31901A
<b>Description:</b> Crosstube High Fwd (AS350/355)	<b>Part Number:</b>	D350-748-101
<b>Inspection Dwg:</b> D350-748-141 <b>Rev:</b> D		<b>Page 1 of 1</b>

Required Dimension	Min	Max
Height	23.13	23.37
1/2 Span	40.78	41.02
Angle	75	77
Total Span	81.56	82.04



Comments

QC15 Inspection	<i>[Signature]</i> 07.02.11
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM <i>[Signature]</i>	<i>[Signature]</i>



DESIGN <i>qp</i>	DRAWN BY <i>qp</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <i>#</i>	APPROVED <i>#</i>	DRAWING NO. D350-748-141	REV. D SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI FWD) NTS	
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6017-115 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

RELEASED

06.10.31 *#*

QTY	P/N	DESCRIPTION
X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
1	D6017-115	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

**D350-748-141 CROSSTUBE:**

- 1) MATERIAL: MANUFACTURED FROM D6017-115 OR D6015-125  
FINISHED LENGTH =  $110.27 \pm 0.06$
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING.
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR  $\varnothing 0.297$  HOLE.

UNDER REVIEW

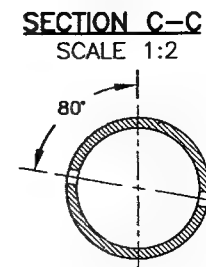
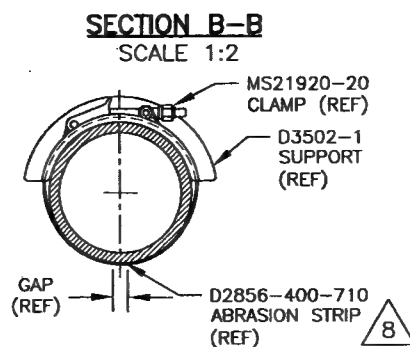
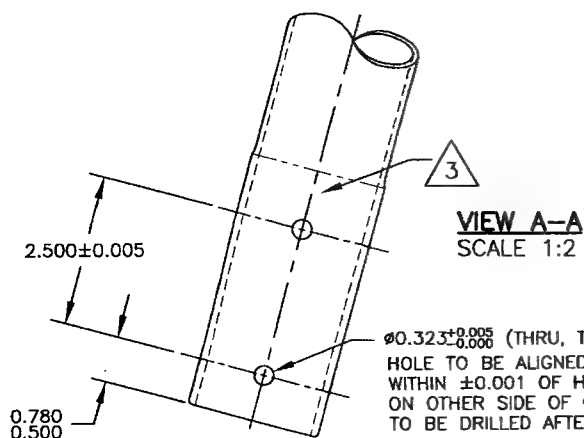
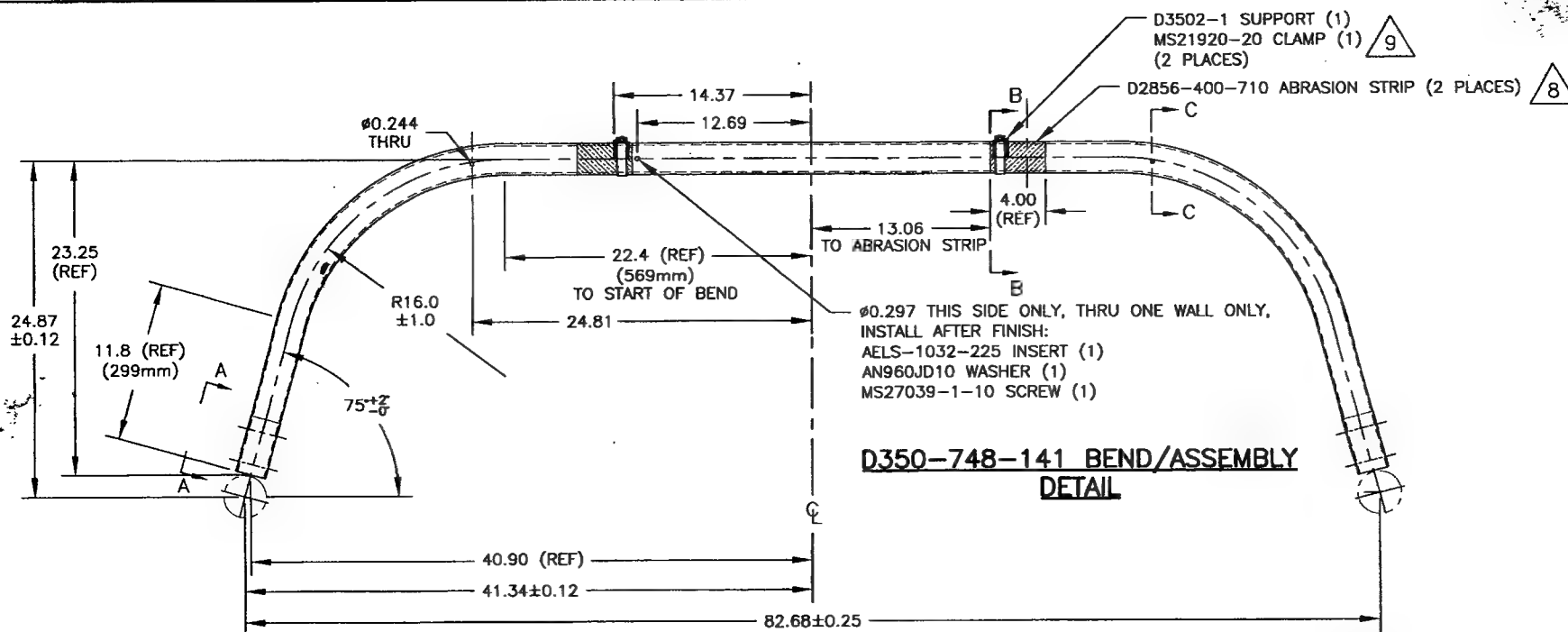
07.02.16  
CUFF BEING REDUCED

OK *qp* 07.03.07

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OK 4/10/07  
**UNDER REVIEW**  
07.07.16

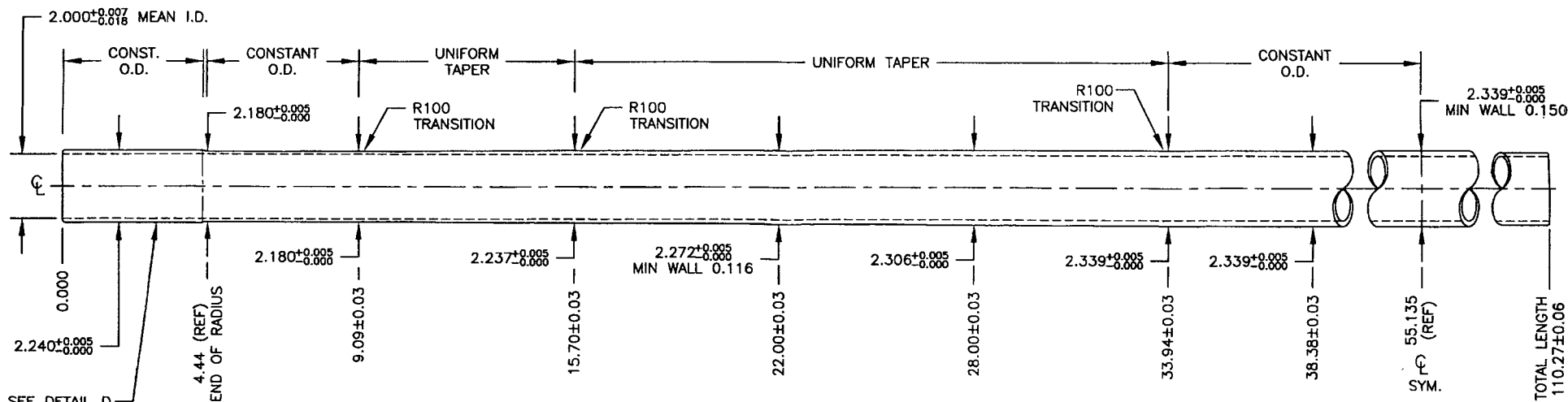
**RELEASED**  
06-10-31

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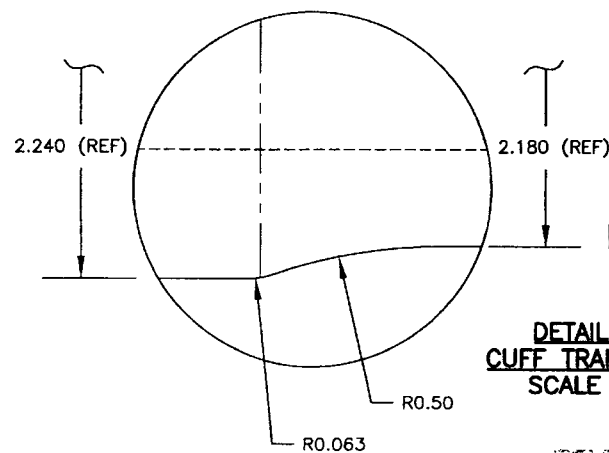
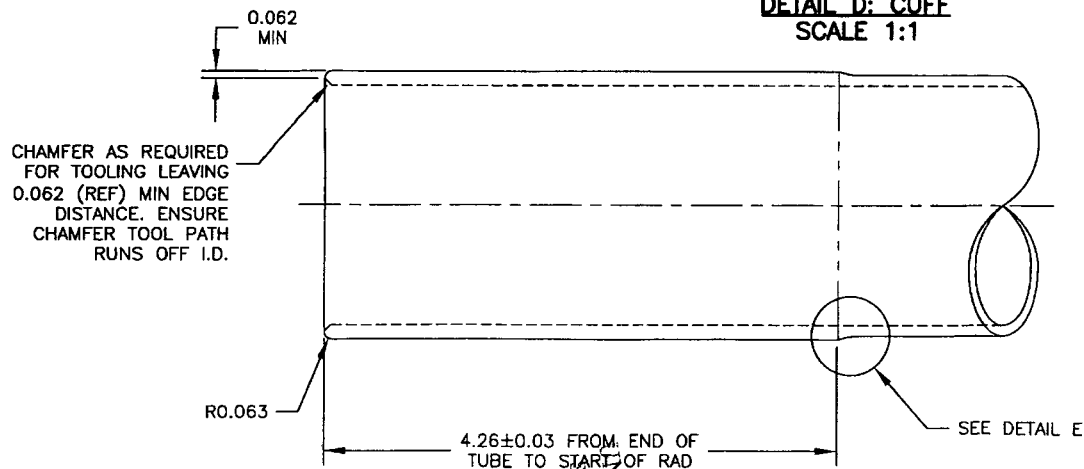
DESIGN	40	DRAWN BY	40	<b>DART</b> DART AEROSPACE LTD. WINDSOR, ONTARIO, CANADA	REV. D
CHECKED	#	APPROVED	#	DRAWING NO. D350-748-141	SHEET 2 OF 3
DATE	06.10.31	TITLE	CROSSTUBE (AS 350/355 HI FWD)	SCALE	1:8

NO. 31901A  
WORK ORDER  
WITHOUT NOTICE  
SUBJECT TO AMENDMENT  
UNCONTROLLED COPY  
ENGINEERING  
RETURN TO  
SHOP COPY



### D350-748-141 MACHINING DETAIL

#### DETAIL D: CUFF SCALE 1:1



#### DETAIL E: CUFF TRANSITION SCALE 9:1

RELEASED

06.10.31

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DESIGN

07

DRAWN BY

07

**DART**

DART AEROSPACE LTD.  
HAMPSHIRE, ONTARIO, CANADA

CHECKED

#

APPROVED

#

DRAWING NO.

D350-748-141

REV. D

SHEET 3 OF 3

DATE

06.10.31

TITLE

CROSSTUBE (AS 350/355 HI FWD)

SCALE

1:3

NO. 31201A  
WORK ORDER  
SUBJECT TO A  
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# VAC AERO

INTERNATIONAL INC.

## RELEASE NOTE

GST No. : R105468102

OAK 87500-1

05/29/2007

MM / DD / YYYY

PAGE : 1

2009 WYECROFT ROAD, UNIT B  
OAKVILLE, ONTARIO  
CANADA L6L 6J4  
TEL: (905) 827-7377 FAX: (905) 827-1380

QUEBEC DIVISION  
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC  
CANADA H4S 1C5  
TEL: (514) 334-4240 FAX: (514) 334-6269

TO: 1DAR01  
DART AEROSPACE LTD.  
1270 ABERDEEN ST.  
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.  
1270 ABERDEEN ST.  
HAWKESBURY, ON

K6A 1K7

K6A 1K7

DATE SHIPPED	SHIP VIA	F.O.B.
05/29/2007	EPIC 4300450343	ORIGIN
CUSTOMER P/O No.	JOB No.	TERMS
3777		COD

PART No.	DESCRIPTION	UOM	QTY ORD	QTY SHPD	TEST RESULTS
D350-748	-141, 241	EA	10	10	
<p>Process Specifications: Procedure: 4353</p> <p>HEAT TREATED TO 180-200 KSI PER AMS 2759-1C</p> <p>100% HARDNESS CHECKED AS PER ASTM E-18</p> <p>HRC 40-43</p> <p>MATERIAL: 4130</p> <p>SAND BLASTED</p> <p>P/S# 59141</p> <p>6 PIECES P/N D350-748-141, S/N B31901A, B31902A, B31903A, B31904A, B31905A, B31906A</p> <p>4 PIECES P/N D350-748-241, S/N B31907A, B31908A, B31909A, B31910A</p> <p>NOTE: NO SERIAL NUMBERS FOUND ON PARTS</p>					

100% HARDNESS TESTED

10 pcs → 42/43 HRC

V.A.I.O.  
TH.  
27  
Q.C.

I hereby certify that the material covered by this release note has been inspected and tested and conforms to all specifications relevant thereto in accordance with the conditions of the contract / or purchase order.

ON BEHALF OF VAC AERO INTERNATIONAL INC.

Authorized Q.C. Inspector



HEAT  
TREATING



SPECIAL PROCESSING - FURNACE EQUIPMENT

**Chris Provencal**

---

**From:** David Shepherd [dshepherd@dartaero.com]  
**Sent:** July 12, 2007 12:39 PM  
**To:** 'Chris Provencal'  
**Cc:** 'Marc Bellavance'  
**Subject:** FW: NCR D350-748-141  
**Attachments:** ncrD350748141.jpg

I don't think this is a problem.

However, looking at the sketch you provided, my preference would be to shift the center over by 0.125 so that the shock absorbers are centered.

That way, you would be out by 0.125" at the ground rather than at the supports.

Make sense?

David

---

**From:** Chris Provencal [mailto:cprovencal@dartaero.com]  
**Sent:** Thursday, July 12, 2007 9:29 AM  
**To:** '\*David Shepherd (\*David Shepherd)'  
**Cc:** 'Marc Bellavance'  
**Subject:** NCR D350-748-141

David,

Qty(1) D350-748-141, the holes for the shock absorbers have been shifted by about 0.125" (see attached). They think the jig moved while they were working on it. The shock absorbers will still fit since they can have a single-bolt attachment to the clamps and can pivot. Our xtubes survived drop testing without the shock absorbers, so this should not affect the strength of our tubes. This may affect the g-loading / load transfer into the fuselage, but 1/8" is unlikely to be significant.

Is this acceptable?

-Chris

No virus found in this incoming message.

Checked by AVG Free Edition.

Version: 7.5.476 / Virus Database: 269.10.4/897 - Release Date: 7/11/2007 9:57 PM

No virus found in this outgoing message.

Checked by AVG Free Edition.

Version: 7.5.476 / Virus Database: 269.10.4/897 - Release Date: 7/11/2007 9:57 PM

12/07/2007



**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Aug-13-2007

**CONSIG NED TO:** Dart Aerospace Ltd.  
1270 Aberdeen St  
Hawksbury, ON K6A 1K7

**W/O #:** 68798

**INVOICE #:** 35484

**CONTRACT OR  
PURCHASE ORDER #**

**4203**

**DESCRIPTION:** SKID

**QTY** 1

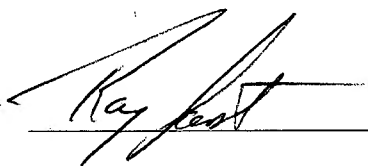
**P/N #** D350748141

**S/N #** B31901A

**CADMIUM PLATE IAW AMS-QQ-P-416 TYPE 2 CLASS 1 MPI IAW  
ASTM E 1444. AND ACCEPTED BAKE HEAT CHARTS #8066 & 8136**

**CERTIFICATE:** I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.

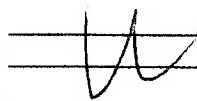
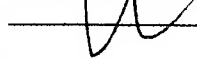
**Approved Inspector:**



**R. LAST**

Date: Thursday, 23/08/2007 10:54:14 AM  
User: Linda Lacelle

# **Process Sheet**

<b>Customer</b> : CC-DAR01 Dart Aerospace Ltd.	<b>Drawing Name</b> : UPDATE PAPERWD350-748
<b>Job Number</b> : 34248	
<b>Estimate Number</b> : 10804	
<b>P.O. Number</b> : N/A	<b>Part Number</b> : Z_CUSTOM
<b>This Issue</b> : 23/08/2007 <b>S.O. No.</b> : N/A	<b>Drawing Number</b> : ECN 1012
<b>Prsht Rev.</b> : NC	<b>Project Number</b> : N/A
<b>First Issue</b> : N/A <b>Type</b> : LANDING GEAR	<b>Drawing Revision</b> : N/A
<b>Previous Run</b> : 00015	<b>Material</b> : N/A
<b>Written By</b> : 	<b>Due Date</b> : 30/08/2007 <b>Qty:</b> 1 <b>Um:</b> Each
<b>Checked &amp; Approved By</b> : 	
<b>Comment</b> :	

## **Additional Product**

Job Number:



<b>Seq. #:</b>	<b>Machine Or Operation:</b>	<b>Description :</b>
----------------	------------------------------	----------------------

1.0	PACKAGING 1	PACKAGING RESOURCE #1
-----	-------------	-----------------------



**Comment:** PACKAGING RESOURCE #1

ADD NEW PAPERWORK TO STK  
PER ECN 1012

D350-748-101 BATCHES:

31904, 31913, 31902

D350-748-201 BATCHES:

31907, 31908, 31908

RETURN TO STK

7/8/24 SP

2.0	QC21	FINAL INSPECTION/W/O RELEASE
-----	------	------------------------------



**Comment:** FINAL INSPECTION/W/O RELEASE

07/08/24

Job Completion



u 07-08-24